

Date: Tuesday, 08/04/2008 4:57:57 PM
 User: Julie Lecoq

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 350/355 AS X-TUBE FWD
 Job Number : 38490
 Estimate Number : 12485
 P.O. Number :
 This Issue : 08/04/2008 S.O. No. :
 Prsht Rev. : NC Part Number : D350748101
 First Issue : / / Type : LANDING GEAR Drawing Number : N/A
 Previous Run : 35731 Drawing Revision : B 08/06/24
 Material :
 Due Date : 30/06/2008 Qty: 1 Um: Each
 Written By :
 Checked & Approved By : JD 08.4.09
 Comment : Est Rev:A New Issue 06-07-05 JLM
 Est Rev:B Update qty of MS21042L5 06-09-12 KJ
 Est Rev:C Rev B 07-11-15 DD
 Est Rev D Combined manufacturing 08.04.02 EC verified by:
 DD

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



JD 08.4.23



Comment: Photocopy bluefile & type labels per PPPD350-748-101. CHG001 08/06/24

2.0 D350748141TRN CROSSTUBE TURNING DETAIL



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

CROSSTUBE TURNING DETAIL

batch 1342422

DP

8-10-2

3.0 BENDING BENDING MACHINE - SKIDTUBES



Comment: BENDING MACHINE

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

DP 8-10-3

4.0 QC15 DIMENSIONAL CHECK OF X-TUBES



Comment: DIMENSIONAL CHECK OF X-TUBES

08.10.03(1)

5.0 CROSSTUBES CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs,
 Set-up drill table as per QSI 010

2-Deburr

8-10-06

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 08/04/2008 4:57:57 PM
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Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 38490

Part Number: D350748101

Job Number:



Seq. #: Machine Or Operation:

Description :

3-Engrave Part # and Batch # as per Dwg D350-748-141 RT 08-10-06

4-Remove all marks from tube within limits of D350-748-141

AWM 8-10-06

5- Apply a light coat of LPS3 on the interior of tube

Batch: 107912 RT 08-10-07

6.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

CHECK 10 DEG HOLES WITH DT8876E(EUROCOPTER CLAMP)

508/10/07 @

7.0

OUTSIDE SERV.10

OUTSIDE SERVICES -skids



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 7326

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possible Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

C 208/10/07
①

8.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

208/10/07
①

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

508/10/22 @

10.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2

2-Prime Outside of Tube as per Dart QSI 005 4.2

RT 08 10 22

W/O:		WORK ORDER CHANGES					
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 38490

Part Number: D350748101

Job Number:



Seq. #:	Machine Or Operation:	Description :
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11.0	QC14	INSPECT SPRAY PAINT
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Handwritten: 08-10-23 (1)

Comment: Inspect Spray Paint
Then, Wrap in plastic bag to protect from scratches

12.0	D35021	SUPPORT
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Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
SUPPORT
Batch: 35783

Handwritten: RT 08-10-23

13.0	D2856400	Abrasion Strip
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Comment: Qty.: 1.2401 f(s)/Unit Total : 1.2401 f(s)
Abrasion Strip 7.10" long x2
Batch: 37667

Handwritten: RT 08-10-23

14.0	ALS41032225	Insert
------	-------------	--------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
Insert
Batch: 100621

Handwritten: RT 08-10-23

15.0	AN960JD10	Washer
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
Washer
Batch: 109059

Handwritten: RT 08-10-23

16.0	MS2192020	Clamp (per MIL-DTL-8783C)
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Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
Clamp (per MIL-DTL-8783C)
Batch: 107501

Handwritten: RT 08-10-23

17.0	MS27039110	Screw
------	------------	-------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
Screw
Batch: 18836

Handwritten: RT 08-10-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 38490

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert, then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-141 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS

25
08-10-23

19.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

08/10/24 (K)

20.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

21.0

D35001

350 SADDLE



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

350 SADDLE

Batch: 41613

SS 08/10/24 (K)

22.0

D35011

BUSHING



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

BUSHING

Batch: B35316

SS 08/10/24 (K)

23.0

AN46A

Bolt



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch: M08558

SS 08/10/24 (K)

24.0

AN441A

bolt



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

bolt

Batch: M100302

SS 08/10/24 (K)

W/O:		WORK ORDER CHANGES					
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Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 38490

Part Number: D350748101

Job Number:



Seq. #:	Machine Or Operation:	Description :
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25.0	AN532A	Bolt
------	--------	------



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: M109061

26.0	AN960JD416	Washer
------	------------	--------



Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)

Washer

Batch: M108827

27.0	AN960JD516	Washer
------	------------	--------



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

Washer

Batch: M109059

28.0	MS21042L4	Nut
------	-----------	-----



Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)

Nut

Batch: M08145

29.0	MS21042L5	Nut
------	-----------	-----



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: M108827

30.0	QC4	INSPECT 100% KITS FOR COMPLETENESS
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Comment: INSPECT 100% KITS FOR COMPLETENESS

31.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-101

Location:

PPP Rev: Rev B

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 38490

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

32.0

QC21

FINAL INSPECTION/W/O RELEASE



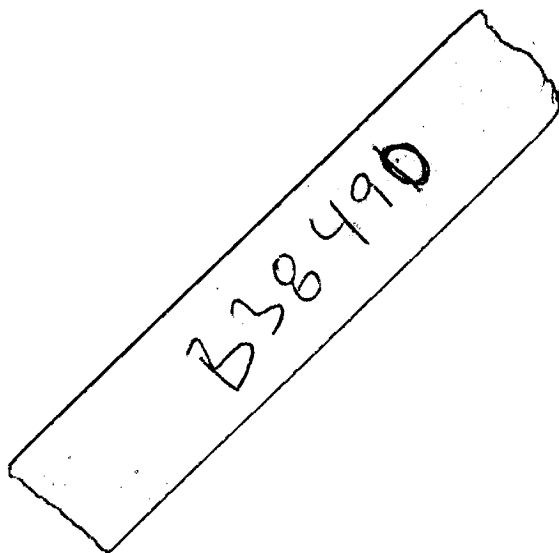
08/10/27

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



mk 08-10-27



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

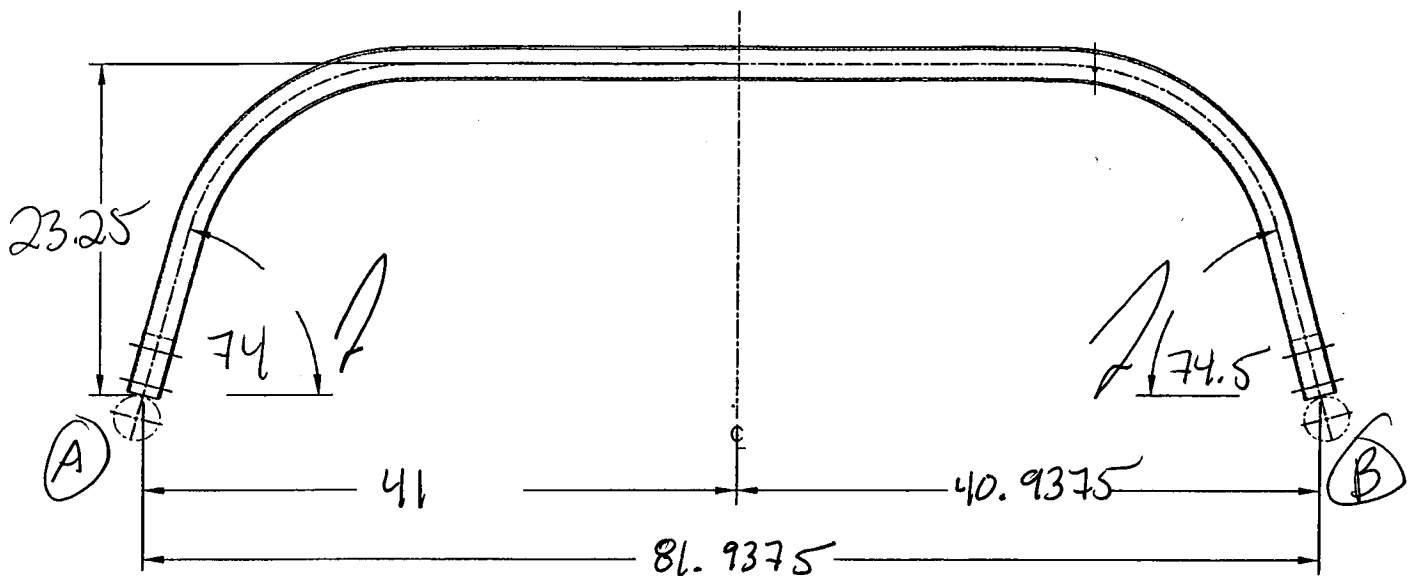
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	38490
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: D		Page 1 of 1	

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
- Trim off 3/16 of C side B.

QC15 Inspection	
Date	08.10.03

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	



DESIGN <i>qp</i>	DRAWN BY <i>qp</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[initials]</i>	APPROVED <i>[initials]</i>	DRAWING NO. D350-748-141	REV. D SHEET 1 OF 3
DATE 06.10.31		TITLE CROSSTUBE (AS 350/355 HI FWD)	SCALE NTS
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6017-115 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	
D	06.10.31	MAG. PARTICLE AND CAD PLATE AS MFD.	

RELEASED

06.10.31 *[initials]*

QTY	P/N	DESCRIPTION
X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
1	D6017-115	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

D350-748-141 CROSSTUBE:

- 1) MATERIAL: MANUFACTURED FROM D6017-115 OR D6015-125
FINISHED LENGTH = 110.27 ± 0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR $\varnothing 0.297$ HOLE.

UNDER REVIEW

07.07.16 *[initials]*
CUT FROM REDUCED
OK 07.11.22

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Dart Aerospace Ltd

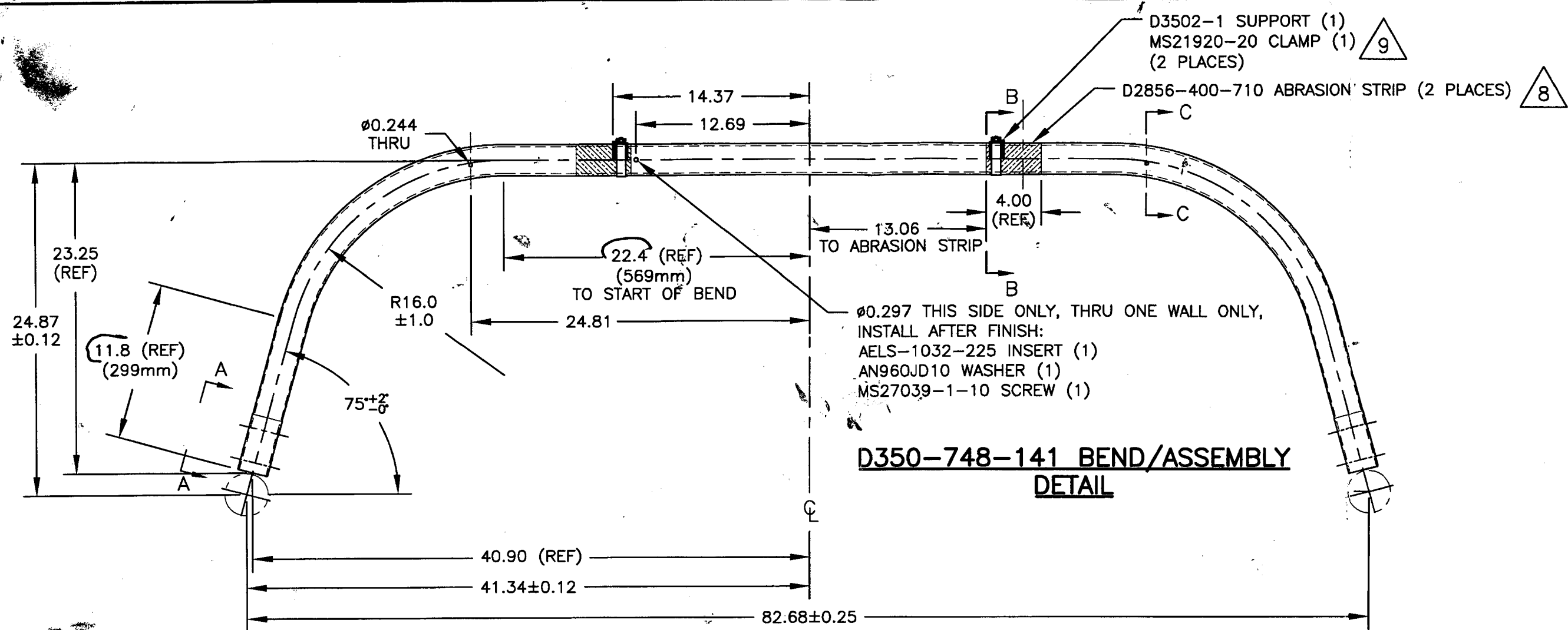
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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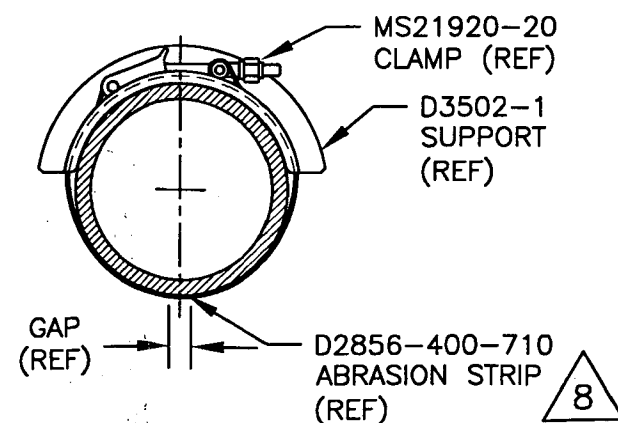
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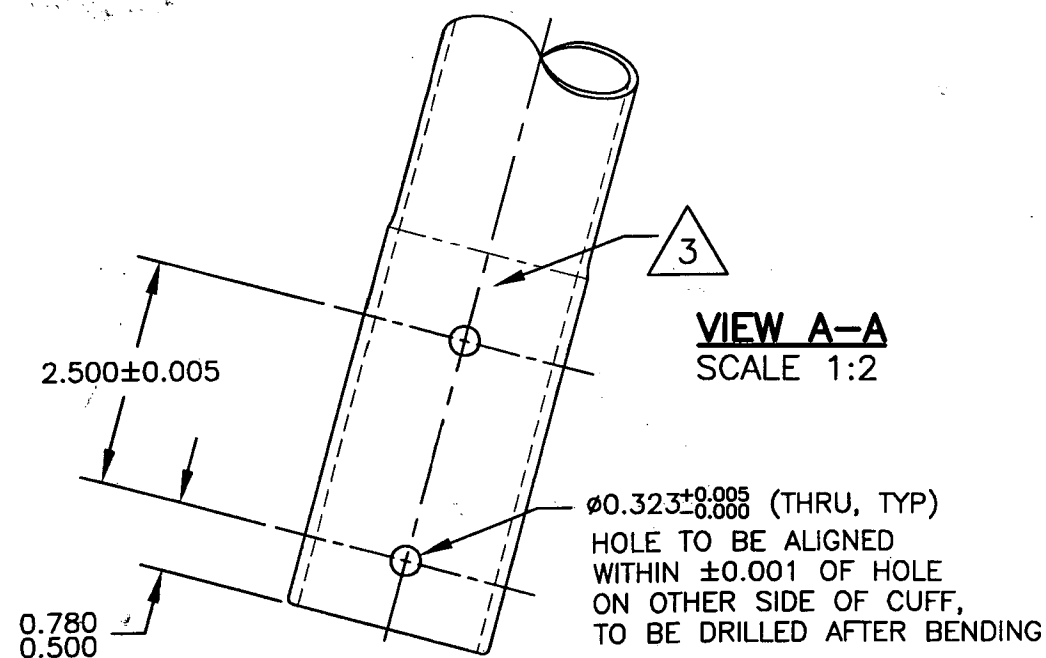
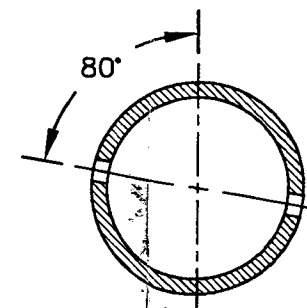
NOTE: Date & initial all entries



SECTION B-B
SCALE 1:2



SECTION C-C
SCALE 1:2



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 38490

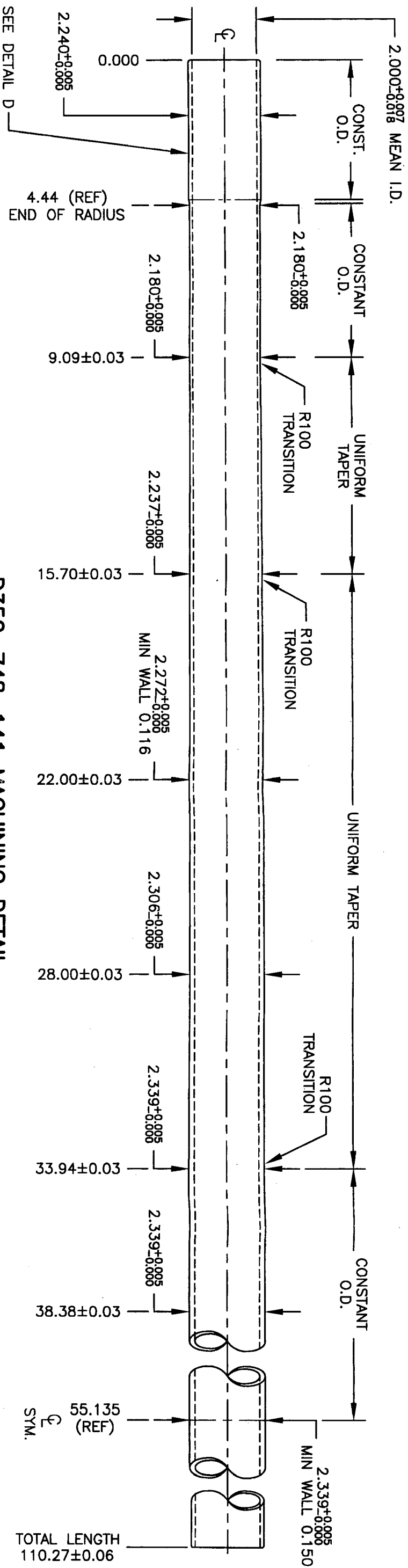
UNDER REVIEW!
07.02.16
CUFF BEND REDUCED
07.07.22

RELEASED
06.10.31

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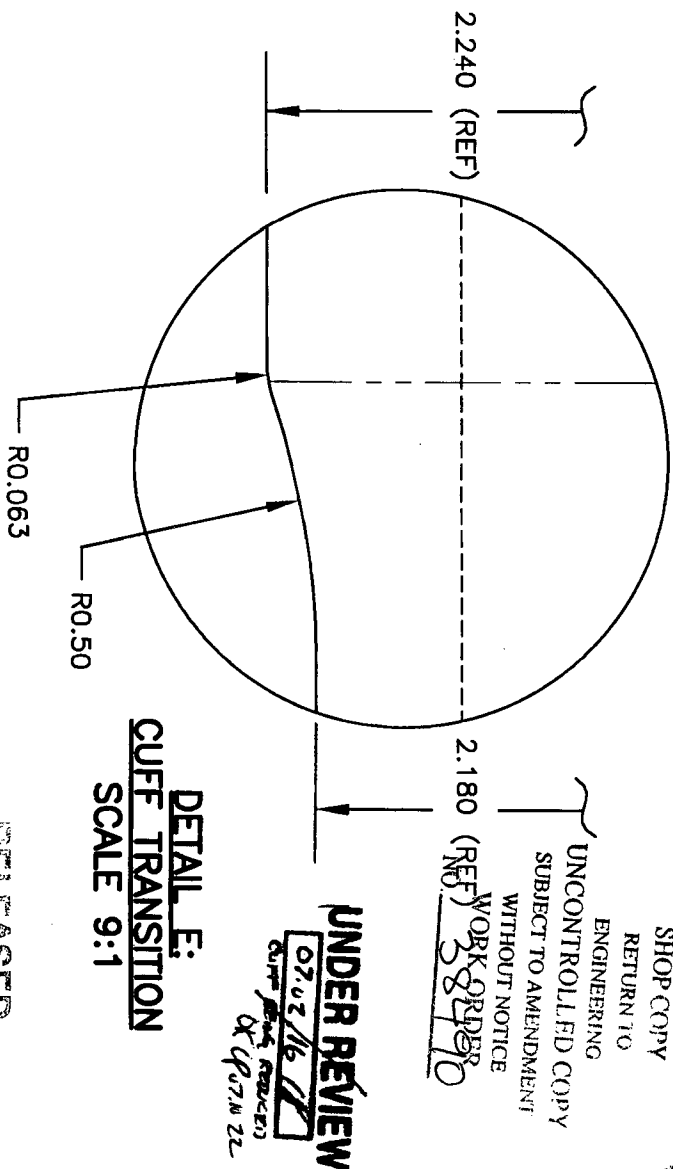
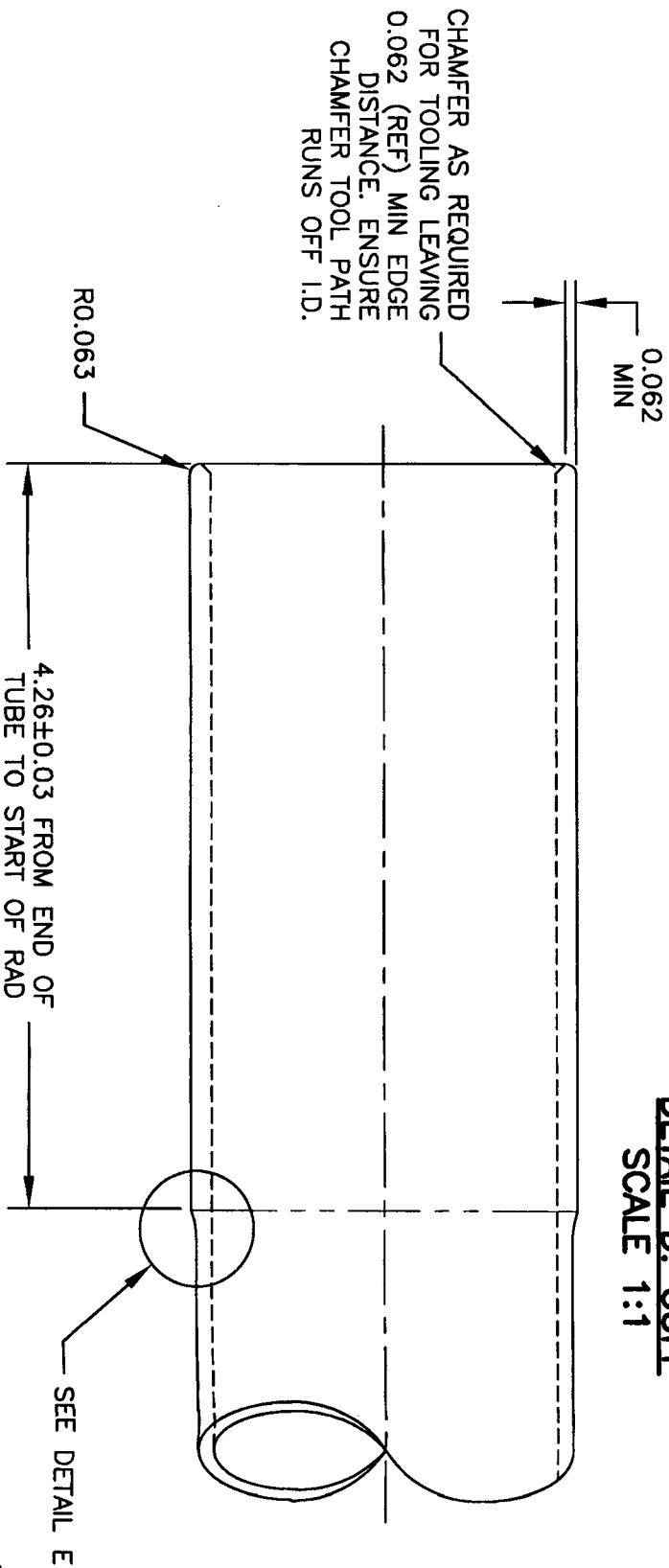
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DESIGN	q	DRAWN BY	q	DART	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
CHECKED	HA	APPROVED	HA	DRAWING NO. D350-748-141	REV. D SHEET 2 OF 3
DATE	06.10.31	TITLE	CROSSTUBE (AS 350/355 HI FWD)	SCALE	1:8



D350-748-141 MACHINING DETAIL

DETAIL D: CUFF SCALE 1:1



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DESIGN	DRAWN BY	DART	DART AEROSPACE LTD. UNIVERSITY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO.	REV. D
DATE		D350-748-141	SHEET 3 OF 3
06.10.31		TITLE	SCALE
		CROSSTUBE (AS 350/355 HI FWD)	1:3

**CERTIFICATE OF
CONFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Oct-17-2008

**CONSIGNED TO: Dart Aerospace Ltd.
1270 Aberdeen St
Hawksbury, ON K6A 1K7**

**W/O #: 80591
INVOICE #: 41382**

**CONTRACT OR
PURCHASE ORDER # 00007326**

DESCRIPTION: KID

QTY 1

P/N # d350-748-101

S/N # B38490

**MPI IAW ASTM-E-1444. CADMIUM PLATE IAW AMS-QQ-P-416B
TYPE 2 CLASS 2. BAKE HEAT CHARTS #9725 AND 9741.**

*S
08/10/02*

**CERTIFICATE: I certify that the items indicated here on have
been inspected and tested and conform to all specifications
and requirements detailed on the contract or purchase order.**

Approved Inspector: _____